

REMARKS

By this Response, no claims have been amended, added, or canceled. Claims 4, 17 and 18 have been previously canceled. Claims 19 and 20 have been withdrawn. Claims 1-3 and 5-16 remain pending.

Rejection of Claims 1-3 and 5-16 Under 35 U.S.C. § 112, First Paragraph

In the Office Action, the Examiner rejected claims 1-3 and 5-16 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

Each of the independent claims contain language directed to forming a first contiguous barrier layer to a thickness X_1 over said upper surface of said low K dielectric layer within said plurality of trenches and to a thickness X_2 over said sidewalls of said plurality of trenches wherein the ratio of X_1 to X_2 is greater than 3 to 2.

It is the Examiner's position that the dimension X_1 is only found on the upper surface of the low k dielectric material "outside of the trench" and reproduces FIG. 2a to support this assertion.

To the contrary, it is respectfully submitted that the contiguous aspect of the low k dielectric material (i.e. the low k dielectric layer 70 is the same layer throughout Fig. 2a), the fact that "sidewalls" are separately disclosed and labeled along with only two designations of thickness, e.g. X_1 and X_2 in Fig. 2a, and the fact that chemical vapor deposition can yield the relationship described and pictorially shown in Fig. 2a, supports applicant's position that the claimed relationship is inherently supported by the original disclosure.

Thus, Applicants maintain that the examiner has taken what one of ordinary skill in the art would easily appreciate and attempted to convene an opposite view. Specifically, labeling a thickness of one part of the barrier layer on the upper surface does not preclude other portions of the figure from including that same dimension on a remainder of the upper surface. The Abstract, at page 23 lines 4-9 of the original specification state "(a) Low K dielectric layer (20) is formed over a semiconductor (10). Trenches (110, 120) are formed in dielectric layer (20) and a barrier layer (70) is formed in the trenches. The barrier layer has a thickness of X_1 over the upper surface of the dielectric layer and X_2 on the sidewalls of the trenches where X_1 is greater than X_2 ". Similar recitations are found throughout the specification, including page 8, lines 4-17 thereof. In this context, the low K dielectric 20 of the trench, while once having an upper surface flush with a remainder of the upper surfaces, now has an upper surface at a lower level within the trench. Accordingly, one of ordinary skill in the art will appreciate, especially given the entirety of the original disclosure, that an "upper surface" of the low K dielectric can be at varying levels and still be an upper surface, particularly when the only other named surface upon which the barrier layer is formed is on the "sidewalls".

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-3 and 5-16 under 35 U.S.C. § 112, first paragraph. Applicants further submit that claims 1-3 and 5-16 are in condition for allowance upon removal of the instant rejection.

CONCLUSION

In view of the foregoing remarks, Applicants submit that this claimed invention is neither anticipated nor rendered obvious in view of the prior art references applied against this application. Applicants therefore request the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 20-0668.

Respectfully submitted,

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